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PHASE TWO: PRODUCT DEVELOPMENT TO PRODUCE WINE FROM SASKATCHEWAN GROWN WILD FRUIT

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Final Report

Product Development to Produce Wine from Saskatchewan Grown Wild Fruit

Presented to:

Topp Berry Farm &

Aspen Grove Cottage Winery Inc.

Presented by:

Trimension Training & Consulting Group Inc.

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1.0 Introduction

Topp Berry Farm manages a premium quality saskatoon berry orchard near White City, Saskatchewan. The proprietors of Topp Berry Farm and their family, Mr. Graham Topp and Mr. Ross Topp, are diversifying from primary production into the value-added processing of Saskatchewan native fruit. To this end, the Topps have incorporated *Aspen Grove Cottage Winery Inc.*, the first Saskatchewan native fruit specialty winery. Before commercial production can begin an number of critical success factors must be in place, these include completing product development, trial and testing and developing a comprehensive marketing and business plan to guide the launch of the product into the Saskatchewan market.

The Topps have completed the first phase in their business start-up during the summer of 1995 which was a feasibility study titled *A Feasibility Study to Establish a Winery to Produce Wine from Saskatchewan Grown Wild Fruit* (Trimension Group, 1995). This study confirmed the feasibility of a saskatoon berry fruit wine market in Saskatchewan as well as other market to be considered in the future.

The purpose of this phase two product development report is to detail the extensive measures taken by the Topps to develop and test a premium quality product. The key step in the product development stage has involved Topp Berry Farm/ Aspen Grove Cottage Winery Inc. working with a professional vintner, Todd Moore of Quails' Gate Estate Winery in B.C. to identify the most suitable types of wines. Todd Moore has extensive experience and expertise in the production of specialty fruit wines and is Canada's foremost fruit wine vintner. Aspen Grove Cottage Winery plans to develop a number of wines including: a sweet dessert wine, a drier table wine, and a specialty premium wine. The dry dinner wine will allow them to better attract those consumers who enjoy grape wines. The winery's long term goals include producing other fruit wines such as raspberry, the most popular fruit wine in the USA, as well as experimentation with chokecherry wine production. However, their strategic approach is to first develop and market a number of quality saskatoon berry wines to introduce to the consumer market.

The specialty fruit wine industry is a relatively new addition to the more widely accepted and established grape wine industry in Canada. However, successful estate fruit wineries have now been established in Ontario, Nova Scotia and Newfoundland in the past three years. The owners and operators of these wineries have indicated excellent local acceptance of their product, which has encouraged greater growth and expansion of this new industry in Canada. Through offering

a product of consistent and superior quality many fruit wineries have begun to expand their markets from local to provincial and national markets. Many of these more experienced estate fruit wineries will act as a guide for the Aspen Grove Cottage Winery as they are charting new territory in the fruit wine industry in Saskatchewan.

The Topps started their initial production from the saskatoon berries from the 1995 crop. The fruit was frozen to be used for experimental blends throughout the fall and winter. A total design concept was evaluated and tested during the product development in order to have a package ready for initial focus group testing in the spring of 1996. The product development will be continued and refined during the development of the business plan in 1996.

2.0 Background

The Ontario wine industry, is the most established provincial wine industry in Canada, and currently produces 90% of all Canadian wines. Many of the wines produced by established Ontario wineries are gaining a worldwide reputation as quality products. The proliferation of smaller wineries, offering specialty wines to niche markets, has resulted in a growing and sustainable industry in the province highlighted by increasing agri-tourism. The Ontario government and the Wine Institute of Canada offer winery routes, wine and food events across the province, and a wine calendar of events related to and celebrating the wine industry.

Compared to the Ontario industry, the British Columbia wine industry is fairly new. The number of estate and cottage wineries continues to rapidly grow in B.C., which has resulted in a booming and sustainable value-added industry in that province. In 1989, B.C. had 12 wineries, but now has over 30 and a projection for over 50 by the turn of the century. Wine routes have been established in a number of areas of the province, and in 1995 approximately half of the tourist inquires at the BC regional tourism bureaus were about visiting wineries.

The new players in the wine industry are the fruit wineries which make wine from fruit other than grapes. A number of different fruit wineries have been established in different provinces, such as Telderberry Wines of Nova Scotia and Sunnybrooke Farm of Ontario. These wineries have found excellent local response to their product. They have also found that to be a viable business, they must sell direct from the winery to tourists and local visitors at reduced tax rates in addition to offering their product through the governments liquor distribution system.

The Topp Berry Farm has already achieved market awareness for its U-Pick operation located near Regina and has established a loyal customer base. This will facilitate introducing and selling Aspen Grove Cottage Winery specialty wine products from this location. The winery will be located approximately 26 km east of Regina on the TransCanada highway. During the summer months nearly 80,000 tourists pass through Regina on this highway. If the winery is clearly marked from the highway, and is well promoted in cooperation with local tourists boards it will easily draw many of these tourists in to "take a ***Taste of Saskatchewan*** home."

3.0 Methodology

As wine making is partially an art form and partially a science, it is essential to employ a qualified vintner with a knowledge and appreciation of fruit wine making, in addition to having expertise in the area of tasting and judging wines. This allows the vintner to work with the winery in order to identify and select the superior blends for production. The successful making, aging, and marketing of a high quality wine can be an expensive and complicated process. The vintners role in the entire process, aside from offering guidance and expert opinion, is to provide a solution of consistent quality fruit pulp and sugar; start the fermentation process by adding yeast and sugar; ensure proper conditions for fermentation to continue are maintained by controlling temperature, sanitation and oxygen; and to stop the fermentation process through clarification, stabilizing and bottling.

The steps involved in the completion of the product development and testing include:

A) Visitation and consultation with the top fruit wine vintner in Canada, Todd Moore of Quail's Gate Estate Winery in Kelowna, B.C.;

B) Identification and purchase of the basic equipment required for production;

C) Preparation to test production under the guidance of Todd Moore;

D) Production of a number of different blends and types of wines;

E) Taste testing and preliminary product design.

The bulk of the ADF funds were used to secure the services of Todd Moore, including hiring, travel, and consulting time.

3.1 Preparation Required

3.1.1 Selecting the Vintner

The Topps in partnership with Trimension Group, worked to seek out a vintner who had not only experience and expertise in grape wine production, but a wealth of knowledge in the production of specialty fruit wines such as saskatoon berry, grape, raspberry, blueberry, and rhubarb wines as well as wine made from honey. This search led to Todd Moore who is currently the Senior vintner with Quail's Gate Vineyards Estate Winery in Kelowna B.C. Todd gained experience in the development of fruit wines during his time with the Lewis Brothers Winery in Grand Prairie, Alberta, where he developed a number of successful saskatoon berry wines. Todd managed the winery and production during his three years with Lewis Brothers. Todd Moore was contracted by Topp Berry Farm/ Aspen Grove Cottage Winery Inc. as a consulting vintner at the end of 1995.

3.1.2 Equipment and Facilities

A number of the manufacturing facility and winery considerations to establish a new winery have previously been discussed in the first phase of this project, the feasibility study, therefore these will not be discussed again in great detail. However, according to Todd Moore there are a number of basic essentials in setting up a winery. These include:

- Strong flooring to support the weight of equipment and full tanks.
- A three phase power (220V) supply as required by most winery equipment.
- Adequate drains with sloping floors in the fermenting and bottling areas.
- A shipping/receiving size door for pallets. A dock is useful but not necessary.
- A heating/cooling system adequate to maintain constant 18º C.
- Counter tops, sink, and cupboards for the laboratory area.

Other less essential items include an office, a tasting area (with a bar and a refrigerator), an on-site warehouse facility, and a walk-in deep freeze.

The Topp's contribution to this phase of the project included the capital purchases of this equipment for approximately $4,000.00. A complete list of the equipment and materials purchased by the Topps, as directed by Todd Moore, can be found in Appendix A.

3.2 Product Development Process

3.2.1 Production Parameters

Todd Moore made his first visit to Regina in January of 1996 after extensive consultation and correspondence to prepare for production. The first step was to set-up and test all of the required equipment. Todd Moore then conducted lab training with the Topps to allow them to manage the facility while Todd was in Kelowna.

The first step of production involved establishing the volumes required to complete the production experimentation and subsequent taste testing. The required volumes were set at 4 - 90 litre batches. Production began with using Todd's existing saskatoon berry recipes he had developed while as Lewis Brothers. Four different recipes were used. One of the batches was used as a control batch, while the other three were tested as variations to assess the effects of any changes on the recipes. The variables which were altered include: temperature, fermentation time, the amount of mixing, and the maturation period. The variations were then tested for color, clarity, bouquet and taste. The batches were mixed according to Todd's instructions and recipes using saskatoon berries, water, sugar, citric acid, tartaric acid and enzymes.

In concert with Todd consulting from Kelowna, the wines were tested and monitored during a seven week fermentation period for temperature, levels of both free and bound sulfur, pH levels, sugar, volatile acidity and tartaric acid. The wines were then racked and monitored for three weeks and then a second racking was done for another seven weeks.

At the end of the process, 12 litres of raw product was shipped to Todd Moore in B.C. for assessment, analysis and experimentation. Based on Todd's analysis, it was determined that Aspen Grove Cottage Winery (Topp Berry Farm) should proceed into product testing with a number of different types and blends of wine.

3.2.2 Identification of Suitable Wines

Todd Moore returned to Regina in late March, 1996 to aid the Topps in the final processing of the selected wines. These would include a "blush" wine as well as a dry red table wine. The final processing which was required included adjustments of acids before filtering and the blending of the wines with selected grapes, water and sugar. The blending was done to alter the wines color, stability, alcohol levels and sweetness.

The final products which were blended for testing included three blush varieties with varying sweetness and two different red table wines with varying dryness. Sixty 750 ml. bottles of each of the blends of the blush were bottled and left to sit for two weeks. Twenty-four of the 750 ml. bottles of each of the blends of the dry red table wine were bottled and racked for four weeks.

3.3 Informal Focus Group Taste Testing

3.3.1 Blush & Red Wines

Informal focus group taste testing of the different blends of wine was conducted by the Topps, as well as private taste testing with industry experts. A wide range of individuals were questioned on their preferences from 'the occasional wine drinker' or wine enthusiast, to past presidents of the Saskatchewan Opimium Society and a number of British Columbia's VQA's (Vintners' Quality Alliance) officials.

The findings from the informal focus group testing and taste testing have shown a very positive reaction in all areas such as, color, clarity, body and bouquet. The responses of different individuals tended towards their personal preferences with regards to the wines. The majority of the individuals participating in one of the informal focus groups held by Trimension Group found that many of the participants felt that a number of the wines were superior to most established Californian wines, and were surprised by the high level of quality. Testing conducted with BC's VQA found that both the red and blush wines would pass the VQA taste testing, as well as the formal VQA testing at the Okanagan Juice & Wine Laboratory.

A number of blind taste test were conducted to eliminate any bias that "local" tasters may have had towards a local product. The taste test compared the three different blush blends with the Canadian market leader in the blush category, the Ernest & Julio Gallo 'White Zinfandel'. The results of this testing found the Aspen Grove blush blends were favoured by far, with the participants selecting the saskatoon berry blush wines every time. The results of the focus groups showed that the majority of the participants

preferred the 'medium' blush over both the drier and sweeter blush blends. Most found that the wine had a light smooth taste with a nice bouquet. They also noted that it had a very versatile flavour that would both compliment a meal and be suitable alone.

The red wine was generally categorized as a medium body, fruity, light wine relative to many of the 'big' red grape wines. A second informal focus group was conducted to test the reaction to the red table wine. The group was composed of a wide range of individuals, from many occasional wine drinkers to a number of wine experts or enthusiasts. The results of the focus group testing showed that the participants were very enthusiastic about the red wine, with a number of them indicating that they favoured the saskatoon wines over many of the California and B.C. red wines. A number of the participants who generally disliked red wines noted that they were happy with the red because of its light fruity flavour. Those participants who had previous experience with saskatoon berry wines that had entered the market stated that the red was far superior in quality and flavour to any they had previously tasted.

3.3.2 Future Testing

Future testing of the wines will involve more taste testing and focus group testing, to test for consistency in quality in future production. This will also allow the Topp to test additional blends of the blush and red wines, as a drier red table wine is planned for the 1996 production year. In addition, the winery's vintner, Todd Moore, has suggested that a number of the blends be entered into wine competitions. Todd Moore is currently investigating which competitions which would be suitable to enter a specialty fruit wine.

4.0 Conclusion

The product development phase of this project has proven that with the guidance of an experienced and successful vintner, it is possible to develop a premium quality specialty fruit wine with wide market appeal. Aspen Grove Cottage Winery has worked closely with their vintner to develop a number of different red and blush wines of both high and consistent quality. This has been further validated by consumer testing as well as formal testing by British Columbia's Vintners' Quality Alliance (VQA). The results of the taste testing as well as the informal focus group testing which was conducted by the Topps in partnership with Trimension Group, has shown that consumers were extremely positive towards both the red table and blush wines. This success in testing would indicate that both a market niche and consumer interest in this type of specialty product do in fact exist.

The purpose of this project was to take advantage of the abundant sources of wild fruit in the province, as well as the market opportunities which exist to introduce the suppliers' side of the wine market to Saskatchewan. The first phase involved completing a feasibility study to determine the viability of establishing a wine production facility in Regina. The results of this study showed that such a venture showed great promise, which led the Topps to continue on to the second phase of this project. Based on the findings and results of the second phase of this project, the product development phase, it is strongly recommended that Aspen Grove Cottage Winery continue on to the third and final phase which will lead to the product launch of Aspen Grove Cottage Winery wines into the Saskatchewan market.

5.0 Recommendations

It is recommended that the Topps continue on to the third and final phase of this project. The final phase of this project will involve completing a comprehensive business and marketing plan which will allow Aspen Grove Cottage Winery to obtain the required financing to successfully introduce their product into the local market.

APPENDIX A: EQUIPMENT & MATERIALS

EQUIPMENT & MATERIALS

LAB EQUIPMENT		
free and total SO2 aspirator	$ 430.30	
1 volatile acidity still (used)	200.00	
pH meter	550.00	
tirtratable acidity apparatus	320.00	
ebuliometer (used)	220.00	
TOTAL		**$ 1,720.30**
MISCELLANEOUS LAB EQUIPMENT		
flasks and vacuum flasks	$130.00	
pipettes	180.00	
lab scale (triple beam)	110.00	
graduated cylinder	140.00	
vacuum pump	20.00	
syringe filter	60.00	
thermometers	30.00	
hydrometers	60.00	
clinitest	7.50	
bentotest	22.50	
misc. and reagents	322.00	
TOTAL		**$ 1,082.00**
CRUSHING, FERMENTING, AND BASIC BOTTLING		
5 - 200 litreopen top plastic containers	$ 116.00	
glass carboys - 6 @ $25.00	150.00	
fermentation locks - 6 @ 7.00	42.00	
racking and pressing	38.00	
TOTAL		**$ 346.00**
FERMENTING MATERIALS		
sugar	$ 156.00	
yeast	10.00	
acids	21.00	
bentonite	4.00	
nutrients	5.50	
fruit		
cleaning and sanitzing	28.00	
TOTAL		**$ 224.50**

PACKAGING EQUIPMENT AND MATERIALS		
bottles - 60 cases @ 7.00/case	420.00	
corks	64.80	
corking machine - hand (used)	146.00	
TOTAL		**$ 630.80**
GRAND TOTAL		**$ 4,003.60**

These equipment costs are based on the first year production of 2,600 cases of saskatoon wine. To increase production in subsequent years, all that would be needed is more tanks and the following equipment.

EQUIPMENT COSTS		
scale	$ 425.00	
tanks (2x2800 litre, stainless steel, used)	3,300.00	
zambelli crusher	525.00	
mechanical press	490.00	
plate filter (20x20, 15 plate used)	2,800.00	
must pump (flex impeller, progressive cavity		
1 1/2" - 2" or piston - used	1,900.00	
small centrifugal (flex impleller)	1,200.00	
hoses and fittings	503.25	
cartridge housing	795.00	
6 spout gravity fill machine	1,000.00	
semi-automatic corker - used	6,000.00	
heat gun (for caps)	65.00	
case labeler	190.56	
case sealing glue (20L)	96.00	
cleaning and sanitation (caustic and citric)	103.00	
SLB licensing fee (annual)	500.00	
TOTAL		**$19,892.00**

* Equipment costs do not include the facility, 3 phase power install, water and utilities, property taxes, and other miscellaneous equipment costs.